

## What is Claimed is:

[c1] A method of determining fabricator capacity for a wafer start loading over a set time period, the wafer start loading having a number of wafer starts, the method comprising the steps of:

- a) determining a common tool set capacity by dividing wafer starts that use common non-key shared tool sets by an overall capacity parameter, wherein the overall capacity parameter is based on a strategic characteristic wafer start loading;
- b) determining a technology capacity by dividing the wafer starts of each technology within the wafer start loading by a corresponding unique tool set capacity for the respective technology; and
- c) determining key shared tool set capacity by:
  - i) determining a capacity consumption factor for each key shared tool set used by at least one process;
  - ii) determining a capacity consumption of each key shared tool set used by a process of the wafer start loading;
  - iii) decreasing a remaining capacity value for each key shared tool set used by the process of the wafer start loading by a corresponding capacity consumption;
  - iv) repeating steps ii) and iii) for each process of the wafer start loading; and
  - v) determining the amount of wafer start capacity available for each process by dividing each remaining capacity value by a corresponding capacity consumption factor for a corresponding process.

BUR9-2001-0116US1

[c2] The method of claim 1, wherein the at least one process includes every process of the fabricator.

[c3] The method of claim 1, wherein the at least one process is a single process of the wafer start loading, and the step of repeating further includes repeating step i) for each process of the wafer start loading.

[c4] The method of claim 1, wherein the capacity consumption factor is determined

according to the formula:

capacity consumption factor = number of passes x safety factor x (key shared tool set throughput / process throughput),

wherein the number of passes is the number of times a wafer start will be processed through the key shared tool set for a given process, tool set throughput is the average rate at which a tool of the key shared tool set operates times the number of tools within the set, and process throughput is the rate at which wafer starts for a given process are processed through the key shared tool set

[c5] The method of claim 1, further comprising the step of organizing processes required by a wafer start loading into technology-based processes and design-based processes.

[c6] The method of claim 5, wherein each technology-based process is associated with at least three design-based processes.

[c7] A method of determining fabricator capacity for a wafer start loading, the method comprising the steps of:

- organizing each technology the fabricator can produce into a component technology-based process and related design-based processes;
- determining a capacity consumption factor for each tool set by process;
- determining a capacity consumption for each tool set by process for the wafer start loading;
- decreasing a remaining capacity value of each tool set by at least one corresponding capacity consumption; and
- determining tool set capacity remaining by each process for the wafer start loading by dividing the remaining capacity value for each tool set by a corresponding capacity consumption factor.

[c8] A system for determining fabricator capacity for a wafer start loading, the system comprising:

a common tool set capacity analyzer for determining the capacity of the fabricator based on at least one common shared tool set;

a technology capacity analyzer for determining the capacity of the fabricator based on at least one technology unique tool set; and  
a key shared tool set capacity analyzer for determining the capacity of a key shared tool set.

[c9] The system of claim 8, wherein the key shared tool set capacity analyzer determines the capacity of a key shared tool set based on the division of a remaining capacity value for the key shared tool set after decreasing for capacity consumption by processes of the wafer start loading by a capacity consumption factor.

[c10] The system of claim 9, wherein the capacity consumption factor is determined according to the formula:

capacity consumption factor = number of passes x safety factor x (key shared tool set throughput / process throughput),  
wherein the number of passes is the number of times a wafer start will be BUR9-2001-0116US1 processed through the key shared tool set for a given process, tool set throughput is the average rate at which a tool of the key shared tool set operates times the number of tools within the set, and process throughput is the rate at which wafer starts for a given process are processed through the key shared tool set.

[c11] The system of claim 8, wherein the key shared tool set capacity analyzer analyzes processes of the wafer start loading by technology-based processes and design-based processes.

[c12] The method of claim 11, wherein each technology-based process is associated with at least three design-based processes.

[c13] A computer program product comprising a computer useable medium having computer readable program code embodied therein for reporting on performance of a plurality of parameters, the program product comprising:

a) program code configured to determine a common tool set capacity by dividing wafer starts that use common non-key shared tool sets by an overall capacity parameter, wherein the overall capacity parameter is

based on a strategic characteristic wafer start loading;

b) program code configured to determine a technology capacity by dividing the wafer starts of each technology within the wafer start loading by a corresponding unique tool set capacity for the respective technology; and

c) program code configured to determine key shared tool set capacity including:

- i) program code configured to determine a capacity consumption factor for each key shared tool set used by a process that is required by the wafer start loading;
- ii) program code configured to determine a capacity consumption of each key shared tool set used by the process;
- iii) program code configured to decrease a remaining capacity value for each key shared tool set used by the process by a corresponding capacity consumption;
- iv) program code configured to execute program code i), ii) and iii) for each process required by the wafer start loading; and
- v) program code configured to determine the amount of wafer start capacity available for each process by dividing each remaining capacity value by a corresponding capacity consumption factor for a corresponding process.

[c14] The program product of claim 13, wherein the capacity consumption factor is determined according to the formula:

capacity consumption factor = number of passes x safety factor x (key shared tool set throughput / process throughput),

wherein the number of passes is the number of times a wafer start will be processed through the key shared tool set for a given process, tool set throughput is the average rate at which a tool of the key shared tool set operates times the number of tools within the set, and process throughput is the rate at which wafer starts for a given process are processed through the key shared tool set.

[c15] The program product of claim 13, wherein the process of the wafer start loading

are analyzed by technology-based processes and design-based processes.

[c16] The program product of claim 15, wherein each technology-based process is associated with at least three design-based processes.

[c17] A system for determining fabricator capacity for a wafer start loading, the system comprising:

means for determining a common tool set capacity of the fabricator based on at least one common shared tool set;

means for determining a technology capacity of the fabricator based on at least one technology unique tool set; and

means for determining the capacity of at least one key shared tool set based on processes required by the wafer start loading.

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